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| APPLICATION NO.               | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-------------------------------|-------------|----------------------|---------------------|------------------|
| 10/621,327                    | 07/18/2003  | In Duk Song          | 2658-0307P          | 2517             |
| 2292                          | 7590        | 03/30/2004           | EXAMINER            |                  |
| BIRCH STEWART KOLASCH & BIRCH |             |                      | VOCKRODT, JEFF B    |                  |
| PO BOX 747                    |             |                      |                     |                  |
| FALLS CHURCH, VA 22040-0747   |             |                      | ART UNIT            | PAPER NUMBER     |
|                               |             |                      | 2822                |                  |

DATE MAILED: 03/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |              |
|------------------------------|-----------------|--------------|
| <b>Office Action Summary</b> | Application No. | Applicant(s) |
|                              | 10/621,327      | SONG, IN DUK |
|                              | Examiner        | Art Unit     |
|                              | Jeff Vockrodt   | 2822         |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 18 July 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-5 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 18 July 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. 10/278,931.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____ .  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7-18-03</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____ .                                  |

## DETAILED ACTION

This office action is in response to the application papers filed on July 18, 2003. Claims 1-5 are pending.

### *Claim Objections*

Claim 4 requires removing portions of the gate insulating layer corresponding to the data pads, but the data pads are overlying the gate insulating layer (42) in applicant's figures. This appears to be a mistake. If it is not a mistake, applicant is required to point out where this is disclosed in the specification. If it is not disclosed, applicant is required to amend either (1) the claim or (2) the specification so that there is basis in the specification for all of the claimed subject matter. 37 CFR § §1.75(d)(1).

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claims 1 and 3-5 are rejected under 35 U.S.C. 102(a,e) as being anticipated by US 2002/0074549 ("Park '549").**

Park '549 teaches a method of fabricating a TFT that uses a diffracting mask (Fig. 31, ¶ 163) that is capable of exposing different portions of a photoresist to a differing degree and thereby producing a patterned photoresist having multiple thickness.

In Fig. 32A, Park '549 teaches forming on a substrate having a gate pad (24), a TFT (66), and a data pad (64) an inorganic layer (silicon nitride 70) followed by an organic layer (photoresist "PR"); the organic layer is exposed to a different degree at differing lateral portions of the device corresponding to the gate pad, TFT, and data pad regions; the inorganic layer is etched through the organic layer (Fig. 33A) to form contact holes (Fig. 35A); and forming electrodes in the contact holes (Fig. 37A).

Claim 3. Park '549 teaches completely removing the photoresist after etching the inorganic layer (compare Figs. 21-22).

Claim 4. Park teaches removing portions of the gate insulating layer corresponding to the gate pads (but not the data pads).

Claim 5. The electrodes are in contact with the remaining inorganic layer 70 (Fig. 37A).

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 2001/0041394 ("Park '394") in view of US 2002/0074549 ("Park '549").**

Park '394 teaches a photolithography system and method of making a TFT substrate (Figs. 24B, 25). Park '394 discloses forming a TFT (456), a gate pad (424), and data pad (464); depositing an inorganic layer (430/470) and an organic insulating material (492/494); selectively

patterning the organic insulating layer to produce regions having a first thickness (494) and a second thickness (492); selectively removing the inorganic material (430, Fig. 25); etching contact holes in the inorganic layer (430) through organic mask; and forming electrodes in the contact holes (Fig. 22). Park '394 teaches selectively removing parts of the photoresist (494) while etching the inorganic layer (470) to leave photoresist (492) in selected regions (Figs. 25-26).

The claimed invention differs from Park '394 by requiring the use of a diffracting mask to form the patterned organic insulating layer.

It would have been obvious to one of ordinary skill in the art to use a diffracting mask to pattern the photoresist in the process of Park '394. One of ordinary skill in the art would have been motivated to use a diffracting mask because Park '549 teaches that diffracting masks are desirable for producing a multi-thickness patterned photoresist and Park '394 requires a multi-thickness patterned photoresist.

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,335,276 and US 2001/0007779 include additional uses of diffracting masks.

Any inquiry concerning communications from the examiner should be directed to Jeff Vockrodt at (571) 272-1848. The examiner can be reached on weekdays from 9:30 am to 5:00 pm EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian, can be reached at (571) 272-1852.

**The fax number for official correspondence is (703) 872-9306.** Unofficial communications to the examiner may be faxed to (571) 273-1848. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist at (703) 308-0956.

March 12, 2004

J. Vockrodt



AMIR ZARABIAN  
USPTO - WASHINGTON, D.C.  
TELEPHONE: (571) 272-1852  
FAX: (571) 273-1848  
E-MAIL: ZARABIA@USPTO.GOV